[EuroHyPerCon](https://eurohypercon.eu/), funded by the [European High Performance Computing Joint Undertaking](https://eurohpc-ju.europa.eu/index_en) (EuroHPC JU), is conducting a pivotal study on the hyper-connectivity of High Performance Computing (HPC) resources. This study, inline with the strategic objectives of EuroHPC JU, aims to examine the connectivity requirements of international and national HPC systems across Europe. Our goal is to design a robust, future-proof connectivity service, including a detailed implementation roadmap.

The anticipated outcome of this study is a thorough analysis of the connectivity needs among EuroHPC systems, encompassing other significant European and national supercomputing and data infrastructures. We aim to understand the dynamics between these systems and their potential or future users, exploring the user landscape, available technologies, and service providers. Additionally, the study will offer insights into implementation strategies, detailing the service offerings, network architecture, implementation tools, and budget considerations. Ultimately, the study will present detailed specifications for the selected network design

To achieve these objectives, we have developed three targeted questionnaires for different stakeholders: [HPC users](http://surveys.eurohypercon.eu/788866), HPC providers (the one you are now browsing), and [network providers](http://surveys.eurohypercon.eu/283724). We are also engaging in various other forms of data collection, such as interviews with major users, focus groups, and a series of workshops.

We greatly appreciate your time and valuable contributions to this survey. Your input is crucial in shaping the future of HPC connectivity in Europe.

For further information or any clarifications, please feel free to reach out to us at [surveys@eurohypercon.eu](mailto:surveys@eurohypercon.eu).

**GDPR Statement:**

EuroHyPerCon is committed to safeguarding the personal data that will be collected via its surveys and other instruments, applying data protection rules inline with the General Data Protection Regulation (GDPR), as well as with corresponding national data protection regulations. In particular, EuroHyPerCon may collect non-sensitive personal information from the survey participants such as first and last name (optional), business-email, affiliation, role, country and related projects, along with other information relevant to the provision or usage or services related to HPC sites. The information entered by the participants are stored in the LimeSurvey related electronic systems in Germany according to its related [Privacy policy](https://www.limesurvey.org/privacy-policy). An agreement between LimeSurvey and EuroHyPerCon has been prepared following the rules for EU countries and clients.

The data collected will be processed by the EuroHyPerCon consortium for the sole [objectives of the study](https://eurohypercon.eu/) contracted to the EuroHPC Joint Undertaking (JU). The data will be kept by the consortium for the duration of the study (which will end in 2024). Participants who would like to remove their data can contact us at the information below. In general no individual data will be published. Public presentations and a public report at the end of the study may be provided aggregating and summarising technical only related data, in particular for the design of the network and related services. In case of significant requirements from big users that may require special links and services, their consent will be requested for publishing their data. EuroHyPeCon may be asked to share some data also with its contracting authority (EuroHPC JU) (see [EuroHyPerCOn Privacy Policy](https://eurohpc-ju.europa.eu/privacy-policy_en" \l ":~:text=The%20EuroHPC%20JU%20processes%20personal,free%20movement%20of%20such%20data.)).

Data Controller: [EuroHyperCon](https://eurohypercon.eu/partners/), [surveys@eurohypercon.eu](mailto:surveys@eurohypercon.eu). Contact persons: Fotis Karayannis, Innov-Acts, project coordinator and Dimitrios Kalogeras, Enomix.

**Section A: Contact Details**

**A1. Please provide us with your contact details:**

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First Name (optional) Last Name (optional)

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E-Mail Country Affiliation/HPC centre

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Role in the HPC centre

**A2.**

**Please characterize your HPC Centre:**

EuroHPC JU co-funded HPC centre

National HPC Centre Regional (sub-region of a country) or institutional centre

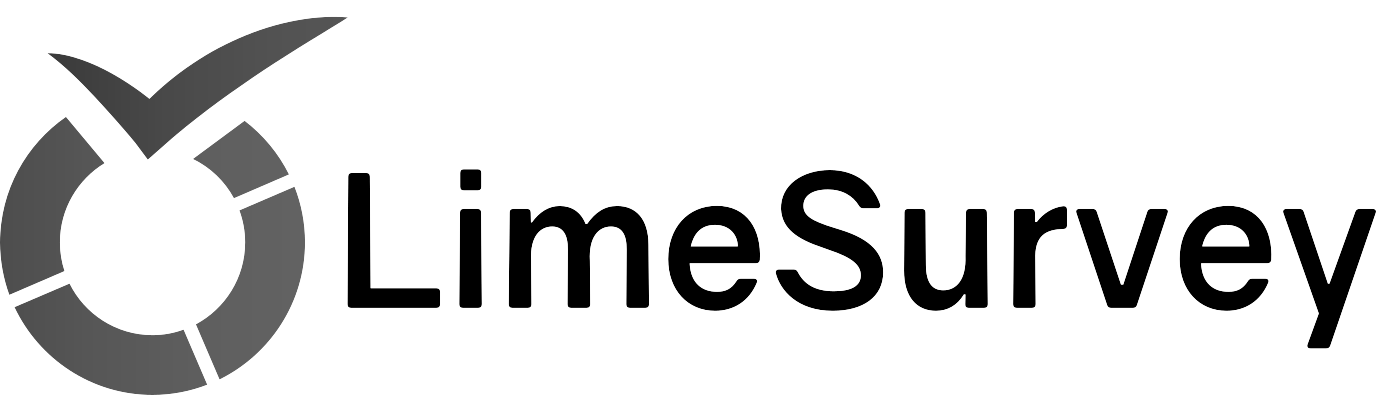
**A3.**

**Are you also involved in HPC-related project(s)?**

Yes

No

**A4. Please provide a list of current projects:**



**Section B: About Users**

**B1.**

**1. Approximately, how many HPC users (meaning projects/clients, not individual users) do you have over the course of the year?**

less than 50

51 - 100

101 - 250

251 - 500

501 - 750

751 - 1,000

more than 1,000

**B2.**

**2a. Do you have industrial/commercial users (clients) at your supercomputing centre?**

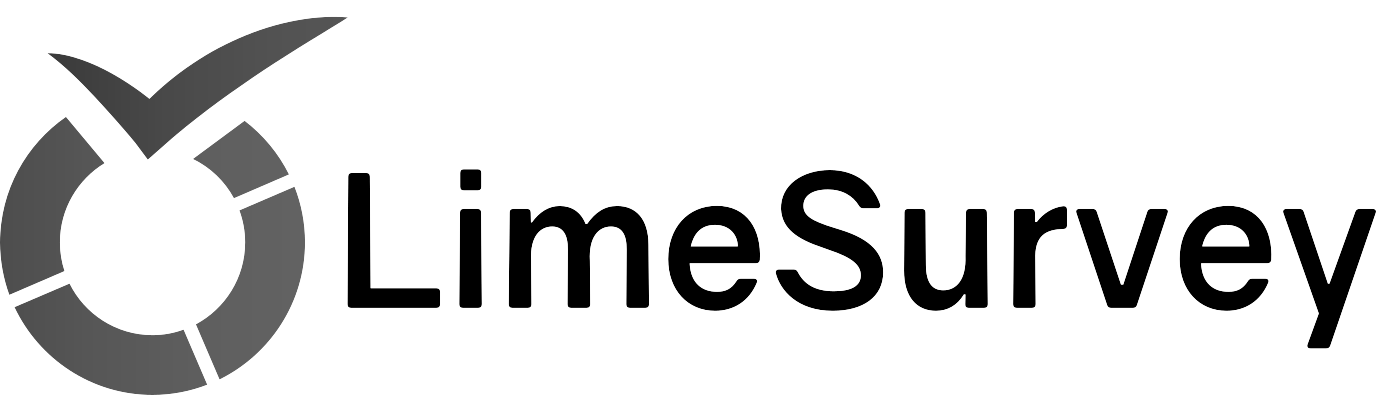
Yes

No

**B3.**

**2b. Could you approximate how many industrial/commercial HPC users (clients) you have over the course of a year?**

**B4. 3. If possible, can you please share a list of selected users with us for the purpose of being able to contact them in the context of this study? (e.g. publicly announced users that you also have on your website or in your presentations). Feel free to give some context, where appropriate.**



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| **B5. 4. How do you deal with data protection and compliance with the relevant regulations when working with external partners or users?** | | |
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| **Section C: About User Journeys**  **C1. 5a. In your opinion, do most of your users follow the following HPC usage scenario?**  **Scenario 1 “Batch processing”: Upload input data → run job(s)/simulation(s) → download output data**  never rarely sometimes very often  always  no opinion | | |
| **C2. 5b. In your opinion, do most of your users follow the following HPC usage scenario?**  **Scenario 2 “Interactive: Processing with feeding data during runtime”: Upload input data → Loop: (run job(s) → update data or upload new data) → download output data (Examples may include data assimilation, streaming, etc.)**  never rarely sometimes very often  always no opinion | | |

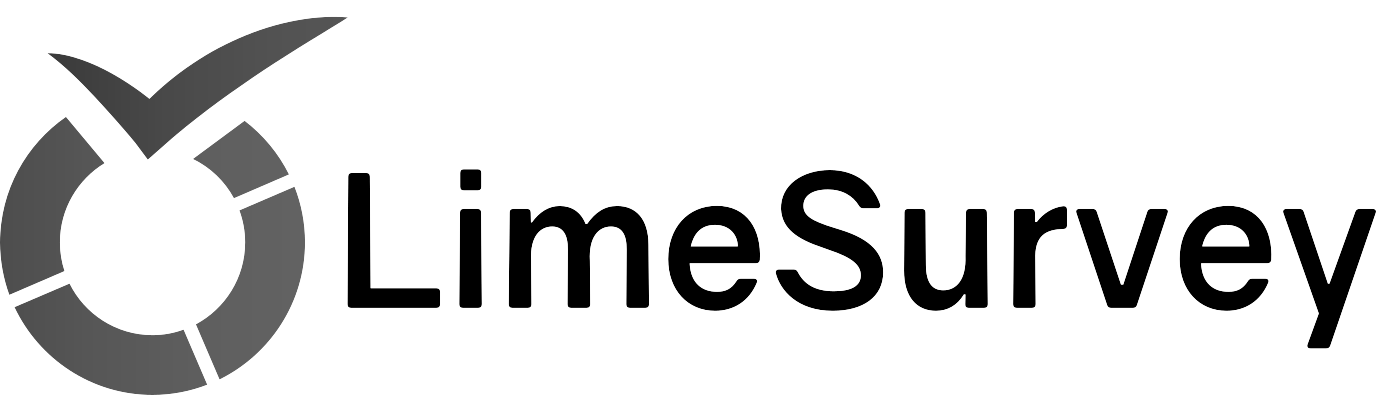
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| --- | --- | --- |
| **C3. 5c. Please describe another scenario, if applicable:** | | |
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| **C4. 6. Can you approximate the percentage of users having concrete security requirements for transferring data? For example, they need to upload personal health data or industrial protected data and therefore need to comply with certain rules. Please indicate a percentage (out of 100):** | | |
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| **C5. 7. Could you please name some additional requirements that called for a change in your connectivity strategy (e.g. VPNs/secure tunnels, etc.):** | | |
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| **Section D: HPC connectivity**  **D1. 8. Who is your upstream provider? (e.g., for HLRS, it is DFN in Germany)** | | |
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| **D2. 9a. Please provide the access connectivity of your HPC centre (to your upstream provider within your country, e.g. HLRS to DFN in Germany). For example, 2 x 100 Gbps, 2 x 200 Gbps, 2 x 400 Gbps.** | | |

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| **D3. 9b(i). Can you estimate how the access connectivity of your HPC centre will look like in the following years (in Gbps):**  **2025?**: Access connectivity (in Gbps) | | |
| **D4. 9b(ii). Can you estimate how the access connectivity of your HPC centre will look like in the following years (in Gbps):**  **2028?** Access connectivity (in Gbps) | | |
| **D5. 9b(iii). Can you estimate how the access connectivity of your HPC centre will look like in the following years (in Gbps):**  **2030 and beyond?** Access connectivity (in Gbps) | | |
| **D6. 10. How do you predict your network usage to grow in the future?**  *Even if you are currently not planning any upgrades - looking at historical data and factoring in new use cases (e.g. through quantum computing or bigger data sets in AI), please estimate your network growth.* | | |
|  |  |  |
| **D7. 11a. Are you connected through other network providers to Public Internet e.g: Tier X providers/Internet eXchange Points etc?**  Yes No  Don't know | | |
| **D8. 11b. Could you please give some details?** | | |
|  |  |  |
| **D9. 12a. Are you participating in any ongoing pilot actions regarding HPC connectivity (e.g., the German Terabit Test Network)?**  Yes No  Don't know | | |

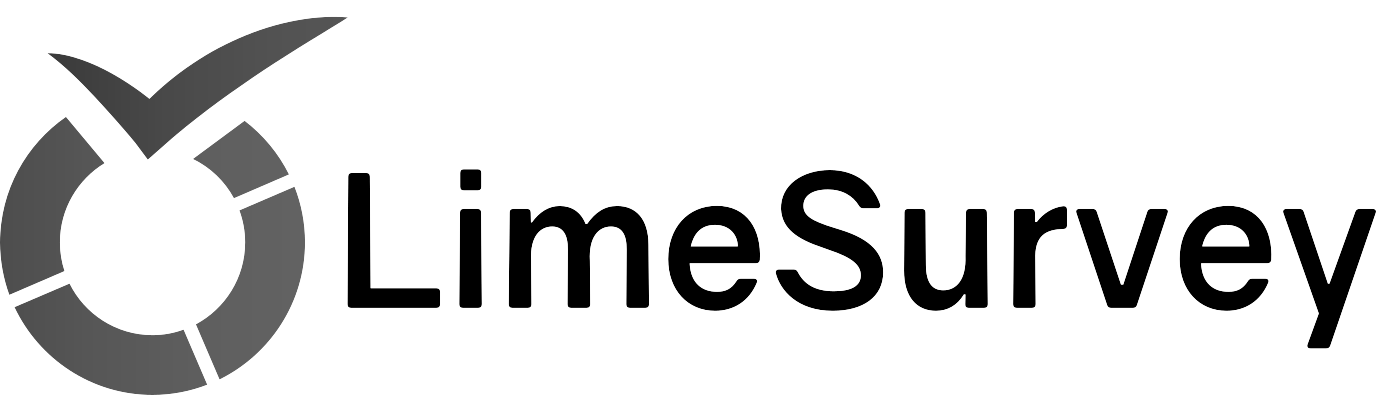
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| **D10. 12b. Could you please give some details?** | | |
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| **Section E: HPC Ecosystem**  **E1. 13a. Do you have any existing collaborations or partnerships with other HPC providers or research institutions to facilitate data and resource sharing? (even at experimental level)**  Yes No  Don't know  **E2. 13b. Please specify:** | | |
|  |  |  |
| **E3. 14a. Are you aware of any bottlenecks in your HPC infrastructure (e.g. connectivity/ interconnect/ storage) when users are transferring large volumes of data?**  *For example, your network connection/bandwidth, or storage interconnect or storage I/O limitations, or the speed of encrypting/decrypting data for secure transfer, or something else influencing the perception of network performance?*  Yes No  Don't know | | |
| **E4. 14b. Please elaborate the bottlenecks (e.g. connectivity/ interconnect/ storage):**  *For example, your network connection/bandwidth, or maybe storage I/O limitations, or the speed of encrypting/decrypting data for secure transfer, or totally different things influencing the perception of network performance.* | | |



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| **Section F: Other comments**  **F1. 15a. Do you have any further comments?** | | |
|  |  |  |
| **F2. 15b. Please provide any attachments (documents, diagrams, etc...):**  **We would like to thank you for your participation!**  You are encouraged to **reach out to other relevant stakeholders** regarding EuroHyPerCon, forwarding our questionnaires, including other users.  EuroHyPerCon will present some initial results at the EuroHPC Summit in March 2024 and also organise a validation workshop later in 2024. In case you would like to keep in touch, please subscribe at [EuroHyPerCon Study Stakeholder Registration - Forms](https://edocs.hlrs.de/nextcloud/apps/forms/s/K8Xn5B27pGtLzJmo95YiXfQg). | | |